A Naval Safety Center Publication

approach

MAY 1973 ...IATION SAFETY REVIEW

They Were Only Fooling

OCCASIONALLY, the Naval Safety Center receives the report of an accident which not only should never have happened, but which can only be characterized as an utter waste. FY-73 seems to be a bad year in this respect as the following collection of accidents attests:

A "Square Immelman"

A T-28C *Trojan* took off on a syllabus aerobatic flight. A student was in the front cockpit; his instructor was in the rear.

After climbing above 10,000 feet, the student completed several aerobatic maneuvers. The instructor then took the controls and announced that he would demonstrate a "square Immelman." He explained that this maneuver would require excess airspeed and a 5G pullup.

The instructor rolled out of his clearing turns on a westerly heading, lowered the nose to gain airspeed (observed by the student to be 280 KIAS), then initiated a sharp pullup. The student later recalled seeing 5 to 5.5G on the accelerometer as the aircraft suddenly began to break apart.

The breakup sequence was such that a violent right roll was imparted to the aircraft. The canopy shattered, apparently incapacitating the instructor. The student, aware of uncontrolled flight, released his lap belt and was thrown clear. He opened his parachute.

The fuselage continued on a westerly heading until impact. The student landed in the water approximately ¾-mile north of the fuselage. He was rescued by a local

fisherman. The instructor apparently made no effort to get out of the aircraft and was found in the fuselage, fatally injured.

Low Altitude Roll

A TA-4F pilot and copilot took off on a cross-country. At the first stopover, the pilot met a buddy, the leader of a section of A-4Ms. That night, over dinner in the officers' club, it was agreed by the two that the TA-4F would join the two A-4Ms the next day on a high-speed, low-level navigation flight over mountainous terrain. The agreement was made without the knowledge or approval of either of the aviators' commands.

The following day, after a short brief, the three aircraft launched. At the turn-in point, the aircraft were high, so the flight leader (in an A-4M) made a descending 360-degree turn to reach low altitude and at the same time pick up the required cruising speed.

During this turn, the TA-4F pilot (third plane in the flight) found he was overtaking the two A-4Ms. To slow his aircraft, he executed a roll at 2000 feet AGL. During this maneuver, the pilot allowed the nose of his aircraft to fall through. The flight leader observed this "scooping out" and broadcast that it wouldn't have happened if he (the TA-4F pilot) had used top rudder.

Later, the flight approached the check point where the low-level portion of the flight would terminate. At the time, there was an A-4M in the lead at 500 feet. The second A-4M was on the right, 2000 feet behind and stepped up 500 feet. The TA-4F was left of the second A-4M, in trail behind lead.

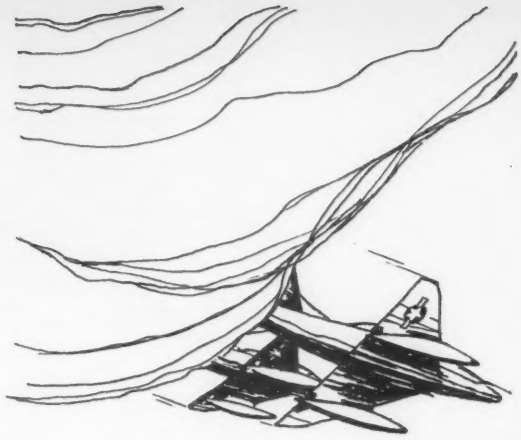
The second A-4M started to cross to lead's left and accelerate to facilitate joinup prior to termination of low-level flight. The TA-4F pilot started a descending right turn to cross behind the second A-4M, then reversed his turn to the left.

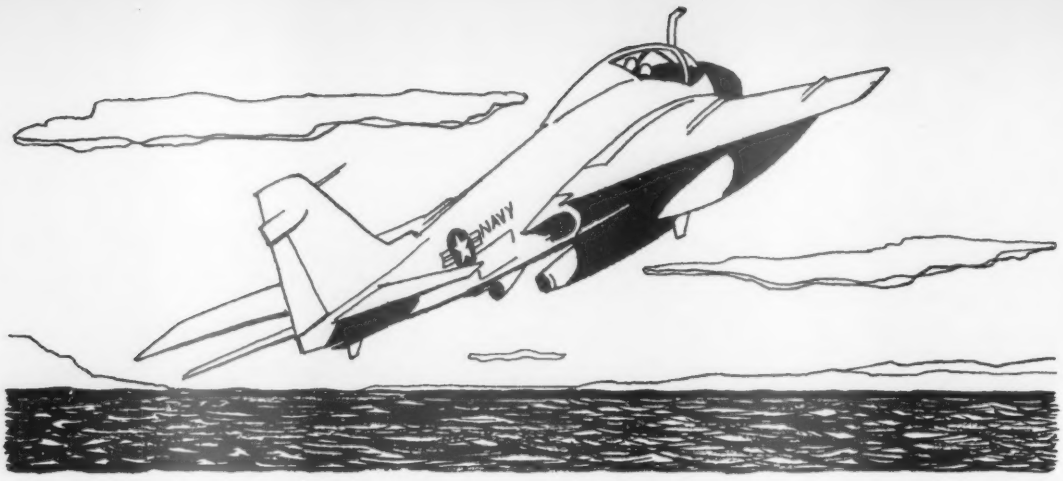
The left roll continued to the near-inverted position with positive G loading applied. The TA-4F copilot asked the pilot, "What the hell?" This was followed by a snap roll right with full aft stick in an attempt to recover. By this time, however, the aircraft was at approximately 200 feet in an incipient stall condition, still descending.

When the copilot ejected at 50 feet, the aircraft had a sink rate of 100 to 200 feet per minute and was in a 10-degree noseup attitude. He suffered major injuries, but survived. The pilot made no apparent ejection attempt and was fatally injured on aircraft impact.

Premature Flaps/Slats Retraction

The crews of four *Intruders* briefed for a flight from a shore station to a CVA. During the brief, the No. 4 man (flying a KA-6D) demonstrated his eagerness to "look good" departing the base. He requested to make a section takeoff on No. 3 (an A-6A). The flight leader





vetoed this and stated they would use minimum interval.

The flight leader called for takeoff, and the division was cleared to taxi into position and hold. As prebriefed, the first two aircraft took the runway. Within 1 minute, the flight was cleared for takeoff.

As the first two aircraft rolled, the second section taxied into position, the KA-6D on the starboard wing of No. 3. A turnup signal was given by the section leader while his BN checked the overall condition of No. 4, noting that his slats were down and the horizontal stabilizer trimmed at 5 to 6 degrees noseup. The lead BN received a thumbs up from the KA-6D pilot, and the third A-6 commenced his takeoff roll.

The section leader's BN was still watching No. 4 and noted that "he came off his brakes less than 1 second after us." During the takeoff roll, the KA-6D was observed to fall behind. (He was carrying 8000 lbs more fuel than the section leader.)

At one point during takeoff, the section leader pulled his power back in an attempt to "give" the KA-6D a little power. He then put 100 percent back on and lifted off at about 130-135 knots. The tanker was observed to remain on the runway for an additional 500-800 feet of roll before lifting off the runway.

Almost immediately after liftoff, the KA-6D was observed to initiate a left turn, followed by a right turn back to runway heading, paralleling the duty runway at approximately 500 feet horizontally. The aircraft was in an extremely nose-high attitude.

Shortly thereafter, the landing gear was raised; and simultaneously, the nose attitude decreased, with the apex of the climb estimated at 150 feet. The KA-6D then began a nose-high descent, exhibiting apparent lateral instability, then commenced a left roll just prior to impacting the water.

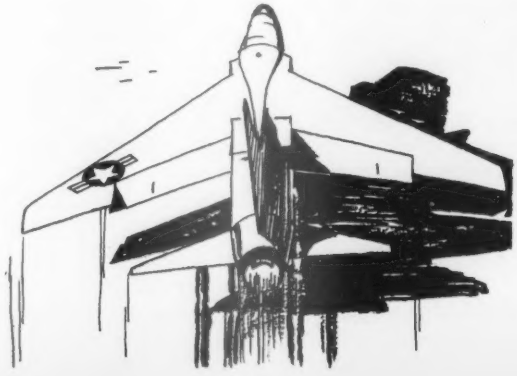
At least one member of the crew was observed to eject almost simultaneously with initial impact. Both ejection seats had fired, but no parachute deployment occurred prior to impact.

Investigators concluded the cause of this accident to be premature retraction of flaps/slats, placing the aircraft in a stalled or a near-stalled condition from which the pilot did not recover.

Premature Landing Gear Retraction

An F-8J *Crusader* pilot was wingman in a two-plane launch from a shore station to a CVA. The section leader had briefed a 1000-foot interval between aircraft on the takeoff roll.

At about the 3000-foot runway marker, the wingman's landing gear was observed to either collapse or retract. Markings on the runway indicate that the gear started up at the 3000-foot marker and that the ventral fins and underside of the fuselage made contact with the runway surface at 3270 feet.



The aircraft skidded along the runway, shearing the BAK-13 arresting gear cable at the 4500-foot marker. At this point, the aircraft caught fire. The pilot initiated ejection at about the 6000-foot marker. Tragically, his Koch fittings were not attached to his parachute; he was fatally injured.

The pilotless aircraft became airborne around 7000 feet, made a gentle left climbing turn, and impacted the ground 1.5 miles from the field.

Investigators concluded the most probable cause of this accident was premature gear retraction.

A Low Pass

An A-6A crew completed six ordnance deliveries on a target having achieved well above-average hits. The target controller asked the pilot if he had enough fuel for a low pass. The pilot answered "affirmative" and requested the controller's position, which was given as approximately 4 miles north of the bullseye.

The exact sequence of events from this point are not known. No further communications were received from the crew, and the aircraft was not in visual contact by ground observers from the time of the final bomb run until just moments before the crash. Witnesses did not agree as to what the aircraft did during its final seconds of flight. Therefore, only a probable sequence of events can be surmised from the wreckage, impact crater, and witnesses' statements. What is known, however, is that the aircraft flew close by the tower in an upright, wings-level attitude at approximately 150 feet and 450 KIAS. Four to six seconds later, the aircraft impacted the ground nose-low, left wing down. Both crewmembers were killed instantly upon impact, apparently making no attempt to eject.

Investigators concluded the most probable cause of the accident was that the pilot, unsuccessfully, initiated an extremely low altitude roll.

Mature and Professional Conduct

Underlying causal factors in these accidents could be discussed *ad infinitum.* Fatigue and supervisory factors, for example, figured in one or more of these accidents. Nevertheless, in each accident, it was the pilot who performed an act in violation of NATOPS and good practice and thus precipitated the accident.

As one endorser noted, *good judgment and common prudence cannot be legislated, but they can be promoted by each individual through mature and professional conduct.* ◄

Mother or M

HOW many times have you heard, "Talking against safety is like talking against Motherhood?" It just isn't done! Why not? Motherhood is being attacked from all sides today – women libbers, zero population growth proponents, and who knows how many others. To verbally assault, argue against, or petition for redress is not, of itself, illegal. Nor is it blasphemy, although in some circles one may be ostracized to some degree or considered a heretic of sorts . . . but what's new?

Birdjocks are famous for hangar flying the other fellow's actions or taking to task his operational viewpoint. Why not the entrenched notions and ideas on safety? Have you heard the statement that safety and operational readiness go hand in hand; that a safe squadron is an operationally ready squadron? Why not the converse, "an operationally ready squadron is a safe squadron." If you accept this last statement as more than just a play on words, then your pump is primed for the next step.

Let's really bear down on improving our operational readiness through increased formalized training and personal professional development. Now that may appear disrespectful of motherhood, however, he who respects motherhood is the individual who was fortunate enough to have a mother who loved and cared for him enough to rap him on the knuckles when he engaged his mouth with his brain in idle. Motherhood is beautiful and respected when it's effective.

We can continue to be effective in the safety game, but the approach must change, for today we are dealing with a problem more sophisticated than yesterday's. We must treat our problem by challenging the day-to-day, kick-the-tire, light-the-fire attitude. That old cliche went out with the Edsel.

We must attack the most correctable causal factor of aircraft accidents today, the pilot – knowledge, judgment, technique . . . The ratio of accidents he causes has remained relatively static. When that hamfisted, slow-witted Neanderthal offspring learns to fly his machine smoothly on the edge of the performance envelope with confidence borne of the knowledge that he knows exactly what he is doing and what to expect because his programmed training has taken him there before, then we shall begin to reap the benefits of not only a lower accident rate – one which doesn't point the fickle finger at the pilot – but also improved readiness.

Some experimentation with various squadron management concepts is presently being tried in our major aviation communities, but maybe they do not go far enough. The combining of the safety and NATOPS functions with quality assurance sounds like a step in the right direction. They blend together like Swiss and mozzarella with a dash of Kirsch, as in a good fondue.

Now, let's take this new organization and imbue it with some kick. NATOPS should be a tool not a club – right? But today, NATOPS often becomes a club when used in determining if the pilot erred.

NATOPS can become a tool only as long as it is a guide rather than a symbol of wrongdoing. We need to make the NATOPS system a graded one. Remove the present mean-little SAT/UNSAT adjectives, and in their stead use a percentile grade. Administer the NATOPS exam at the squadron level twice a year. We must weed out the marginal performer and the laggard who barely gets by. Naval aviation cannot afford to carry the mediocre. We *can* afford to be decidedly more selective

r Mistress?

By CDR D. M. Lenardi
Naval Safety Center

in our assignments to cockpits.

Very few naval aviators remain absolutely constant in their aviator capabilities throughout their naval careers. Many reasons account for this. Long periods away from flying for some, constant cockpit time for others. We must not, however, be blinded by certain self-sustaining myths, i.e., the 4000-hour pilot is better than the 2000-hour pilot. In some cases 4000-hour pilots are better, in others it is obvious they are not.

We need a useful management tool with which to spot trends, one which provides the commanding officer and detailers with assistance in weeding out those weak performers and aviators who simply don't measure up. Not only would we improve operational readiness and safety, we'd gain the everlasting gratitude of those pilots/NFOs who know they are not good enough, but who possess a degree of pride which precludes quitting of their own volition. These are the people who are obviously Navy-oriented, but are misplaced in aviation. We vitally need them, but not in the cockpit. We have the tool already in NATOPS, but we need to improve its manageability. In addition, require QA inspectors to pass periodic written examinations. We would then have a quality assurance program manned by experts in their own fields: senior petty officers, men of proven integrity.

A safety department! A damn good idea and one often suggested but never implemented 'til now. But who heads up the Department? What's his background? What formal training, if any, has he had? *Does he want the job?* Are BUPERS and selection boards going to treat the billet as inferior to the other departments. (What's their track record in this area?)

Let's have the aircraft model managers, in concert with both Monterey and the Naval Safety Center, develop a programmed educational syllabus to be administered at the squadron level and designed to complement the phases of operational training undertaken between deployments.

Give phased examinations in the progress of training. These graded examinations would be recorded in the individual's "Flight Performance Jacket," along with his weapon scores/qualifications, instrument exam/flight grades, etc. The Performance Jacket, which would follow the individual to each successive flying assignment, would then serve as a basis for a semi-annual aviator/NFO evaluation report by the commanding officer. We could then provide a meaningful detailer management tool for subsequently assigning the aviator/NFO to aviation billets and ultimately, in concert with the Officer's Report of Fitness, for use by the Aviation Command Selection Board in the always difficult command selection decision.

In addition to the foregoing, institute an aerospace/industrial safety management curriculum leading to an advanced degree at Monterey.

We spend a great deal of money on other curricula leading to specialties and subspecialties within the Navy, all designed to enhance our hardware/software procurement and relations with and understanding of foreign governments and their political systems. Why not a professional program designed to enhance the interface between man and machine?

In short, we are now getting the hang of the tango, having progressed from the modified two-step. Safety must no longer be synonymous with motherhood. Our force is getting smaller, and if we are to continue to be a *force de qualite*, we must improve our training, safety concepts, and management. Operational readiness is the name of our game, and it is very demanding; but then, most mistresses are!

When Bill Brinks wrote this article almost 6 years ago, little did he realize that at least two *Phantom* aircrews would credit their lives to what he had to say. (Duke Hernandez and Steve Van Buren, VF-21, Dec 1967 and Randy Cunningham and Bill Driscoll, VF-96, May 1972.)

Written during the height of the Vietnam conflict, its merit has been tested twice by damaged birds. Despite a 'Nam ceasefire, the "Brink's Procedure" remains valid. Its use during similar emergencies, outside combat, might at least enable a flightcrew to pick a preferable ejection site.

Disregarding the particular mechanical causes and results, such recovery techniques (delaying tactics in most cases) have proven invaluable to pilots of other type aircraft. An A-6 crew, for instance, nursed their bird along for 26 minutes after launch with the *Intruder's* elevator jammed UP. While the crew ultimately had to abandon the aircraft, time permitted them to exhaust every possible means of safely recovering the bird.

Another recent accident emphasizes the value of such a procedure. A TA-4J *Skyhawk*, as the result of a partial rudder disconnect during takeoff, pitched up to a point from which recovery was impossible. The crew ejected. Had the pilot been mentally prepared to cope with such an unexpected situation, he might have been able to buy the altitude needed to perform a complete hydraulic disconnect and possibly save the aircraft.

Again, the article that follows was originally written for *Phantom* drivers, but offers benefits for the entire naval aviation community.

Aircraft Control During Combat Emergencies

By Bill Brinks — Experimental Test Pilot

YOU have a sick bird deep over enemy territory. To get home, or at least reach a less hostile ejection area, every mile you can get behind you is as precious as an oxygen tent is to a heart patient. Here are some pointers for controlling your bird in combat emergencies. We've discovered these only recently. While these procedures *have not* been fully flight tested and are meant for limited control in extreme cases, they may get you those precious extra few miles.

PC-1 and PC-2 pressure is lost because of damage to parts of the hydraulic system. Do you have any *pitch control?* You might, if the stabilator power control cylinder is undamaged. It may be possible to "lock" the stabilator hydraulically in a fixed position and thereby conceivably maintain a reasonable flight attitude. But – and this is important – it depends largely on the techniques you employ.

Before we suggest some techniques we feel will help get things going your way, let's lay a little background. Thanks to Perry Hoffman (one of McDonnell's autopilot and F-4 flight control experts, and well-known for his series of DIGEST articles on flight control), a number of ground tests were performed to validate the stabilator control theory. These ground tests showed that the minimum pressure required to actuate the stabilator power control cylinder varies from 500 to 1500 psi. We also know that if forward pressure is held on the control stick below this minimum actuation pressure, a hydraulic lock may form between the stabilator power control cylinder and the one-way check valves just upstream from the actuator in the PC-1 and PC-2 lines.

Now back to techniques. Position the stabilator to the attitude you desire as PC-1 and -2 fall to the 500-1500 psi level. With PC-1 and PC-2 pressure gone, the stabilator power control cylinder is okay. We suggest you position the stabilator with forward stick pressure as soon as possible after the stabilator ceases responding to the stick. Maintain forward stick pressure to hold the hydraulic lock. *Don't relax forward pressure on the stick.* Aft stick after hydraulic lock will vent fluid, and you'll have no more lock.

How long can you hold the lock? There is no fixed answer, but we know it depends largely on holding forward stick pressure. It also depends on system leakage, the integrity of mechanical linkage, and the condition of the one-way check valves. Therefore, you can see that this technique may not work every time. We can sum it up this way. As PC-1 and PC-2 pressure falls below minimum required, apply forward stick pressure. The stabilator will probably remain fixed until forward stick pressure is relaxed or until leakage will no longer hold the hydraulic lock. Loss of the hydraulic lock will be characterized by an increasing nose rise, since aerodynamic force will pull the stabilator leading edge down. Let's get the record straight on one point here before we go on. Do not consider this information as a "cure-all." The technique as suggested should be regarded as just one more possibility you have – nothing more. It might be a big one, though.

Continued

Now, what about lateral control? Some degree of lateral control is available as long as PC-1, PC-2, or utility hydraulic systems are operating, and the aileron/spoiler actuators are working. Lateral control following complete hydraulic failure (PC-1, PC-2, and utility) can possibly be maintained with manual rudder control. In Air Force aircraft, of course, with two people (two people and two sets of pedals plus adrenaline) pushing on the rudder, the task is reasonable.

In Navy aircraft, F-4B and J troops will have to work harder. Only the pilot has rudder pedals. Directional control through differential power settings is a possibility also.

We'll wind this up now. Although these procedures may seem like a long shot, there's always a chance they will prolong a flight just long enough to make the difference between winning and losing. It won't hurt to have them in mind.

• – *dateline: December 1967. "... the first indication of trouble was when, at 7000 feet altitude, the aircraft suddenly pitched violently up and rolled to the right. Duke immediately pushed the control stick forward, against the stop, and started rolling in full nosedown trim.*

"Just prior to stall, he kicked in top rudder. As the aircraft rolled inverted, the nose fell through. With rudder control only, he managed to keep the aircraft under some semblance of control, performing what might be called a huge barrel-roll, or something like a corkscrew. There was, at this time, no aileron control.

"After the third roll, Duke figured he could handle the aircraft, so he proceeded to check instruments. There was no loss of engine, electrical power, or utility hydraulic pressure. Both PC-1 and PC-2 hydraulic systems read zero.

"Afterburner was required to maintain speed and whatever altitude that could be held. At one point, he deselected afterburner, but airspeed fell too low to maintain the escape maneuver. After being hit, the aircraft travelled approximately 15 miles under a constant load of 5 to 6G at 19 to 20 units of angle-of-attack . . .

"After the entire thing was over, Duke remarked that he didn't know where the plane had been hit, but that he had read an article in the **Product Support Digest** *pertaining to longitudinal controls and loss of PC systems. He credited that article with helping him get the aircraft out far enough to eject over water. He also said that without utility hydraulic pressure, he might not have been able to control the aircraft because of airloads."*

• – *dateline: May 1972 . . . "About 45 seconds later, the aircraft yawed violently to the left, and my first reaction was that of steadying the F-4. A check of instruments showed the PC-1 hydraulic system indicating zero, PC-2 and utility systems fluctuating. Thank God for sea stories, for from somewhere out of the memory bank came a recollection of 'Duke' Hernandez, a Navy pilot who had rolled his aircraft to safety after having lost primary hydraulics. Sure enough, when PC-2 went to zero, the nose of the F-4 went straight up, just as had happened to Hernandez.*

I pushed full right rudder, forcing the nose to yaw right and down. The aircraft rolled to the right, and as the nose passed just below the horizon, I pushed in the speed brakes and selected full afterburner to start a climbing roll. Each time the nose reached the top of the upswing, I had to bring it down so as not to stall. On the downswing, I tried not to let the nose get too low, or it would have been impossible to get it back up with rudder alone. We rolled like this for 15 miles, starting at 27,000 feet, and ending up at 17,000 feet." ◄

Editor's Note: Since this article was written in 1967, there have been some aircraft changes that may affect your particular situation. For instance, the lateral controls have been modified on all aircraft so that they now operate on utility hydraulic pressure as well as on PC-1 and PC-2 systems (Navy AFC-400, UK AFC-43, USAF T.O. 1F-4-780). With this triple-redundant system, you will have varying degrees of lateral (aileron/spoiler) control with loss of any one or two hydraulic systems. Loss of all three systems still produces the lateral control situation Bill analyzes in his article (including the try for manual rudder control).

On the Air Force side of the flight line only, a stabilator auxiliary power unit (APU) has been added to F-4E and RF-4C aircraft, Block 40 and up (T.O. 1F-4-903). If the stabilator power cylinder is still serviceable, the APU provides adequate longitudinal control even with loss of both PC systems (utility system does not power the stabilator).

Courtesy McDonnell Douglas *Product Support Digest*
and Bruce Mitchell

Rotorheads, here's an idea that might stack the odds in your favor during a night dip or night VERTREP. Does what you hear register for what it is? *Uh, say again?* I mean, by ear alone can you tell if your powerplant is telling you it is sick – before the lights flash?

Compressor Stall

or What You Hear Is What You Get

By LCDR Brian H. Shoemaker

THE LOSS of an engine in any aircraft initiates a chain of pilot reactions which, if handled professionally, will minimize the possibility of an aircraft accident and maximize crew survival. The success of the recovery, assuming the pilot is sharp on NATOPS procedures, is based on two factors:

- The time it takes him to recognize an engine failure
- His reaction time

It stands to reason that if either of these two variables can be shortened, the chances of recovery are enhanced. It's merely a matter of time.

The first variable, the time to recognize engine failure, is the critical factor in this discussion. For example, while attached to HS-1 at NAS Key West, I experienced two compressor-stall engine failures. In both cases, the engines failed on the deck because of salt encrustation. The occurrences were unnerving. But the important point to be made here is that the sound a compressor makes when it stalls is now indelibly etched in my mind.

Several months after experiencing the compressor stalls, I was giving an instructor standardization check to another pilot. During an automatic approach, as the aircraft was transitioning to a hover, I heard a compressor stall and immediately began recovery procedures. I nosed over, went to full power, and was building up single-engine airspeed before my eyes scanned the gages. The No. 2 N_f and oil pressure were just beginning to drop, and the T_5 advanced even later. Recovery was successful and a single-engine landing, with no further problems, ensued at Key West. The cause of the compressor stall (unimportant here) was the breakdown of the oil-fuel heat exchanger.

The importance of the incident is twofold. The first and, in this case, the most positive indication of an engine failure was the sound of the compressor stall. The other was the pilot's ability to recognize the sound and relate it to impending failure.

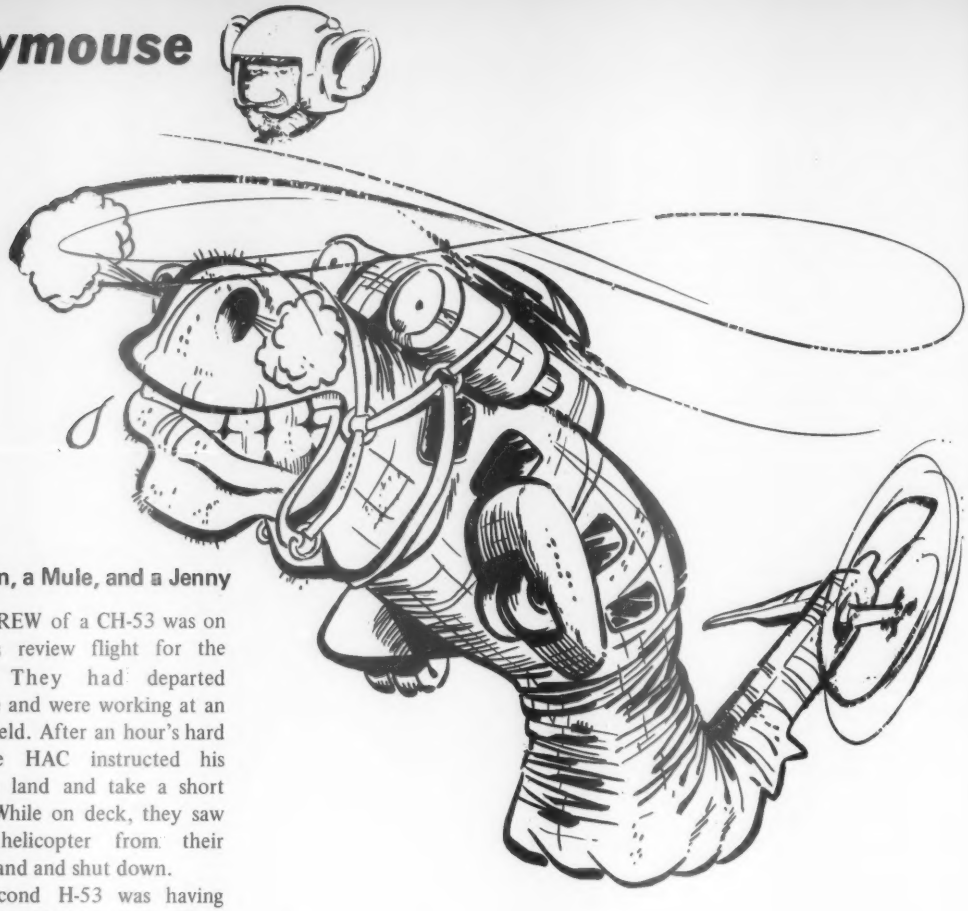
My postincident research disclosed that MIMs and NATOPS Manuals for aircraft with T-58 engines either don't mention compressor stall or have varied and confusing descriptions of what one sounds like. Very few pilots have any idea what a compressor stall sounds like.

This leads to what I believe is a training deficiency. The NATOPS program stresses visual indications for recognition of impending emergencies, but neglects to place any reliance on aural recognition. Yet, in a compressor stall, the first and most positive indication of engine failure is aural.

This naturally leads to other questions. What are the sounds of other malfunctioning equipment? Can they be heard above the normal noises of the aircraft? This approach to an old problem has great possibilities. I recommend the following:

- Designate a sponsor to develop a stereo tape recording of a T-58 compressor stall.
- Use the tape in applicable weapons systems trainers and in squadron training sessions.
- Amend NATOPS Manuals for T-58 powered aircraft to incorporate procedures to be followed when the stall is heard.
- Record not only compressor stalls, but also sounds of other equipment or component failures to be used in a similar manner.

Anymouse



A Stallion, a Mule, and a Jenny

THE CREW of a CH-53 was on a syllabus review flight for the copilot. They had departed Homeplate and were working at an outlying field. After an hour's hard work, the HAC instructed his copilot to land and take a short breather. While on deck, they saw another helicopter from their squadron land and shut down.

The second H-53 was having hydraulic problems, so its HAC requested that his teammate return to base for help. The big *Sea Stallion* headed back for the necessary men and equipment.

The HAC passed the word to squadron maintenance about the plight of the downed helo and the need for an NC-5 and a hydraulic jenny. The support equipment was ready when he landed. The crewchief advised his HAC there was an EAPS (engine air particle separator) barrel already aboard and that the other equipment would have to be placed toward the after end of the helicopter. The HAC acknowledged the information, directed the load be positioned as far forward as possible, and advised he would check the CG in a hover.

The HAC lifted into a hover, and although he had a slight tail-heavy condition, decided it was well within limits. He picked up flying speed and started to climb out. Passing through 300 feet, the aircraft suddenly pitched up 15-degrees. The crewchief advised the pilot that the NC-5 had rolled backwards and was resting on the closed ramp. Since the driver was still sitting in the seat of the NC-5, he started it and drove it forward to its original position.

After landing slightly nose-high, it was revealed that *neither the NC-5 nor the hydraulic jenny had been tied down!* Securing cargo is standard procedure in any aircraft, but for some strange reason neither the HAC nor the crewchief saw to it that it was done.

This incident could have been catastrophic had it occurred in

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT, PREVENT AN ACCIDENT

warm weather – with the ramp and door open. The NC-5, for example, could have rolled right out the tail end of the helicopter, driver and all. Another possibility would have been for the main rotor blades to strike the doghouse when the pilot used forward cyclic to alleviate the aft CG as the NC-5 departed the aircraft.

The importance for pilots and crewchiefs to ensure that loads are secured properly cannot be overemphasized.

Shookmouse

Right on! I get nothing but bad vibes from the performance of this crew. Wouldn't be surprised to hear that a couple of heads got busted after a confrontation with the CO. But as for the driver sitting astride that mule rolling back toward the ramp – that's some kind of cool.

Beer Anyone?

ALTHOUGH this Anymouse is not a personal experience, I can attest to its authenticity because the officer involved related it to me before he lost his life in an aircraft accident.

An embarked CVA helicopter crew was performing its usual, daily duties in WestPac – such things as planeguard, logistics and passenger transfers, mail and parts drops, and the like.

This particular flight involved guard, mail and passenger transfers. An officer was being sent to a destroyer, a newcomer to WestPac, to conduct briefings on various procedures. There were also two enlisted men onboard to be transferred to another destroyer enroute.

The crew arrived over its first stop and lowered the two sailors, the mail, some parts, and, best of all, movies. The destroyer sailors, in gratitude for the helicopter's services, attached a cold, six-pack of beer to the hoist.

The remaining passengers in the helo were surprised at the unexpected treat and anticipated a nice, cold beer enroute to their destination. Much to their chagrin, however, the two helicopter crewmen popped the tops and quaffed down a beer each, then handed one to each pilot. The remaining two beers were tucked carefully away, presumably to be consumed on the trip back to the CVA.

Needless to say, this incident does not speak very highly of the helo crew, their professionalism, or their responsibility for the safety of all involved.

COofanotherunitmouse

You've got to be puttin' me on! (But I'll take your word for it, even though it is hearsay evidence.) It was most gross of the HAC to permit such a violation of regs, but to **encourage** *it through participation makes the violation even more gross. If the HAC had been called to the bridge after recovery at Homeplate (***for any reason***), he'd have been in deep trubs without a breath freshener. By the way, would the* **passengers** *really have quaffed the beer themselves, in the bird, enroute???*

Knock It Off

DURING a typical WestPac line swing in which the tempo of operations was hot and heavy, as usual, rapid decisions were being made to expedite operations to meet commitments as fast as possible.

After 4 hours of continuous VERTREP, we landed our H-46 at Homeplate to hot refuel and brief for our next mission. The sea condition was rough, and the weather wet and grim. The deck was slippery, but stable.

While my copilot left the cockpit for a brief pit stop, the ship's OOD decided to change course and tower frequency. Change course he did, and with sufficient rudder to list 10 to 15 degrees.

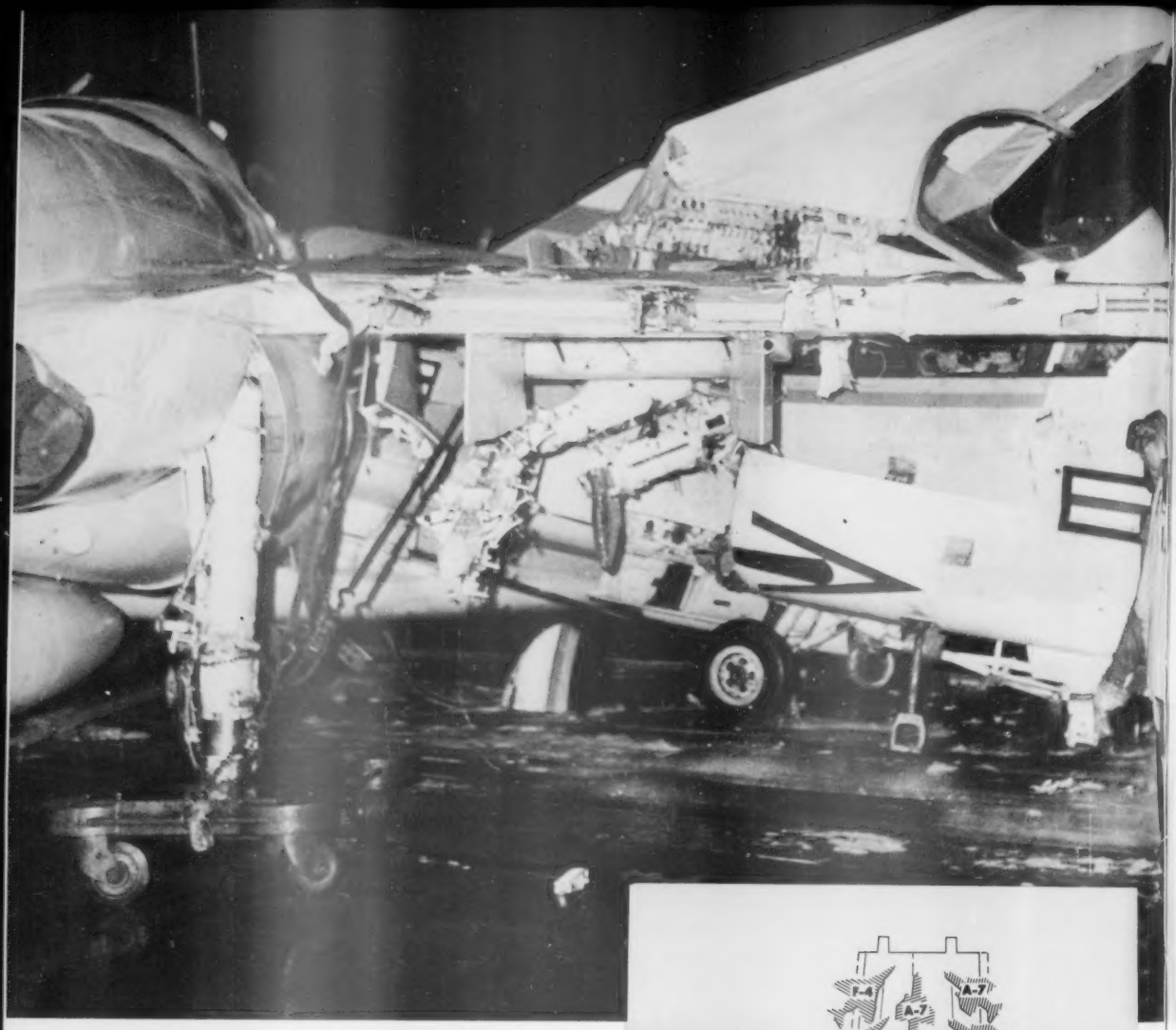
The helicopter began to slide, with crewmembers and fueling personnel hanging on for dear life. Trying to hold the aircraft on deck with both hands and feet, I tried to call Homeplate control, but they had switched freqs to set up for the next operation.

Having just the limbs I was issued, I fought frantically to keep the helicopter from sliding off the edge. I couldn't shift frequencies, so I tried the next best thing. I called any unit this frequency and asked them to relay to my pointy end they were losing their helicopter. By this time, however, the ship steadied on its new course and had shifted back to my frequency – in time to copy my plea for assistance.

Boy, did we have a communications gap between the pointy end and the blunt end. I have a suggestion. When the tempo of operations increases, do *not* sacrifice prudent and standard safety precautions for expediency. We slingmouses will do everything to perform our mission, but skippers, please don't take helo operations for granted.

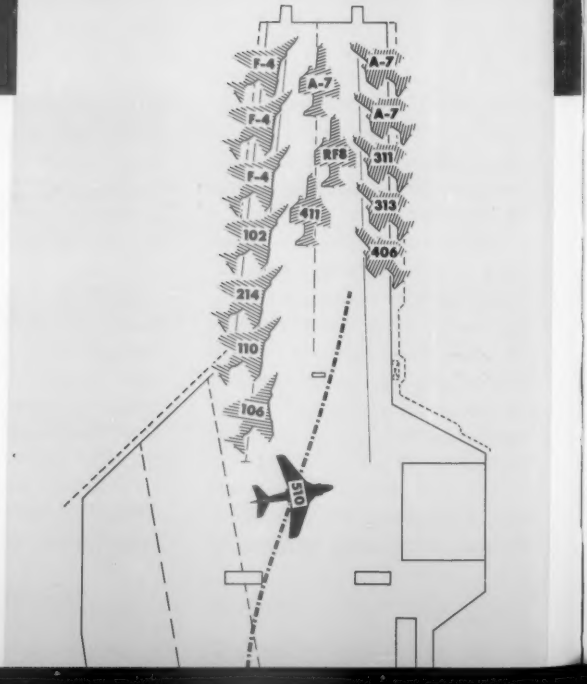
VERTREPmouse

Let's make it a mutual effort. If you helo crews will insist on chocks and tiedowns for pit stops, hot refuelings, and the other "hot" deck periods, I'll bet the ships' OODs will announce every course change over the 1 MC. ◄



When The Chips Were Down

Know-how Paid Off!



"... crash and fire on the flight deck! General Quarters! General Quarters! All hands man your battle stations..."

ON 24 October of last year, a major accident, tantamount to a disaster, occurred aboard MIDWAY (CVA-41). Because responsible personnel knew their jobs and responded immediately, damage and personnel injury was held to a minimum. Effective use of the MB-5 crash truck was given much of the credit for preventing more extensive damage to the ship and other aircraft.

This article is not concerned with the causal factors involved in the aircraft mishap. A brief description of the accident itself is necessary, however, for readers to better correlate the actions taken by MIDWAY flight deck personnel during and after the crash.

The aircraft involved was an A-6A returning from a combat mission. Enroute to the ship, a visual check by another aircraft revealed that the *Intruder* had two hung bombs – Mk-82s – both on station 5.

A Case III penetration and approach to landing were normal. Just prior to touchdown, there was a noticeable increase in the *Intruder's* sink rate, and the right wing dropped slightly. The deck was pitching and at the moment of touchdown, was coming up. (The latter was corroborated by several witnesses during the mishap investigation.)

The starboard wheel touched down first and separated from the axle. The broken strut engaged the No. 2 crossdeck pendant 23 inches right of centerline. Fire was visible in the starboard wheelwell. As the A-6 swerved right, the strut disengaged from the pendant. The aircraft was now skidding up the axial deck, port wing forward.

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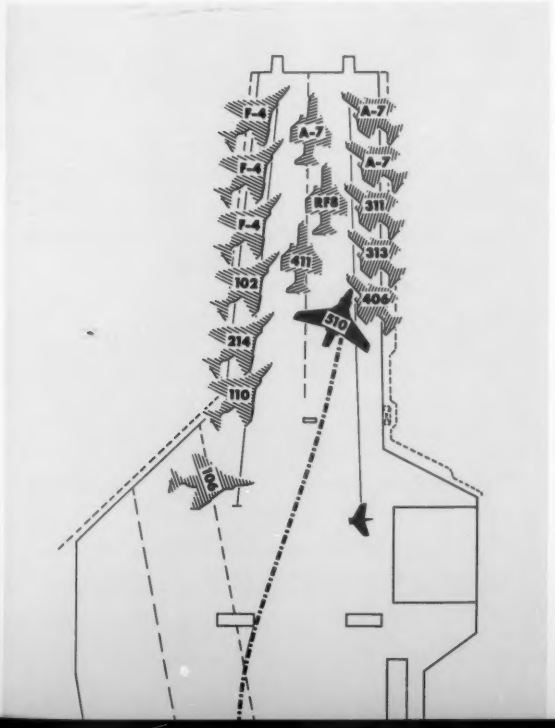

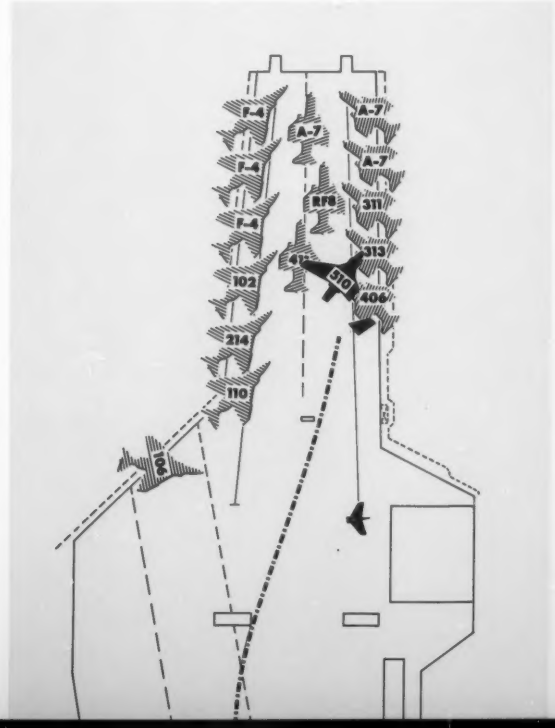

The A-6 continued up the straight deck sideways and impacted an F-4B parked on the port side just clear of the foul line. The tail section of the *Intruder* was severed forward of the horizontal stabilizer, and the after fuselage burst into flames.

Impact with the *Phantom* changed the course of the A-6 fuselage, and it smashed into three A-7s parked forward on the starboard bow. All movement came to a crashing halt.

MIDWAY flightdeck personnel knew their jobs. They responded immediately.

When it became evident that a major crash was imminent, the CO of MIDWAY had passed *that* word over the 1MC and directed that general quarters be sounded. The preliminary "explanation" by the skipper for GQ started all hands in the right direction.

Prior to the crash, the A-7s on the bow were being fueled. When the crash alarm sounded, all fueling was stopped, and the pumps immediately secured. The impact of the A-6 and one of the A-7s ruptured a fuel cell in the *Corsair,* causing a major fuel spill in the vicinity of the fire.

In less than 30 seconds, the MB-5 was on the scene spraying light-water on the fire and ordnance in the immediate area. In less than 2 minutes, the flames were extinguished. Although the MB-5 was the primary firefighting vehicle, assistance was rendered by the two TAUs (twin agent units) and numerous deck-edge stations.

Because of the speed in extinguishing the fire, there were no ordnance incidents. One Mk-82 was defuzed and jettisoned; one was never found and presumed lost over the side. One *Sidewinder* was thrown into the sea.

The mixture of JP-5 and light-water made the deck very slippery. Salt water hoses were used to clear this mixture from the deck as aircraft were moved from the crash scene.

Directions from the air boss through SRC-22 "mouse ear" headsets on the flight deck proved effective in assisting damage control efforts. As an example, he was able to "coach" the MB-5 directly into the fire after observing the light-water spray being blown away from the flames by wind over the deck.

The CO worked directly with the air boss on the sound-powered circuit to keep noise and distraction to a minimum. The XO, stationed on the bridge, coordinated medical support, evacuation, muster, and the like, using the telephone, 1MC, and sound-powered talkers. MIDWAY's operations officer was in CIC making operational reports to higher authority, and requesting medical and SAR assistance. MIDWAY's plane guard DD and helo were on the scene immediately, searching for possible survivors in the water. Coordination between the skipper and Ops was accomplished via "squawk box."

Mass-casualty procedures were commenced as soon as the fire was extinguished. Yellow vehicles were used as emergency ambulances to transport stretchers to the elevators.

Five hours after the crash, MIDWAY was fully operational.

MIDWAY wasn't prepared for this near-disaster by accident. The officers and men involved in damage control operations were well-trained and ready to respond. Here's *why* they were ready:

- The MB-5 is operated every day, and the light-water system exercised. Thus, all turret operators feel comfortable with their equipment.

During MIDWAY's last inport period before the crash, the MB-5 was offloaded and overhauled, and refresher training was conducted for each driver and turret operator.

- All firehoses on the flight and hangar decks are checked and operated daily. Faulty hoses are replaced. During drills, hoses are fully charged. This instills confidence in the crew that the hoses will work when needed.

- Prior to the accident, two full-scale mass-casualty exercises were conducted. As a result, the bugs and details had been worked out. Interestingly, although the drills were primarily directed at the fantail or arresting gear areas, there was no difficulty shifting efforts to the bow.

- The ship's communications network was also used effectively. This kept the confusion factor to a minimum.

One recommendation resulting from this accident was that the flight-deck medic be equipped with a "headset" helmet so he and the air boss can coordinate medical and elevator activities. MIDWAY has already implemented this change.

In the words of the MIDWAY CO, "We were fortunate to minimize damage and casualties during this crash. But I believe we made our own luck through training of personnel, rigid insistence on PMS (Planned Maintenance System) and fully operational equipment, and, finally, through the magnificent efforts of sailors who took pride in themselves and their work."

MIDWAY has proven that training and dedication produce know-how – *and know-how pays off.* Well Done.

Emergency procedures require deliberate, accurate movements by all personnel. As in communications, speed is secondary to reliability and accuracy.

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A recent ASO Anymouse report recounts the manner in which a young F-8 FRP (fleet replacement pilot) handled a very hairy situation. A partial panel . . .

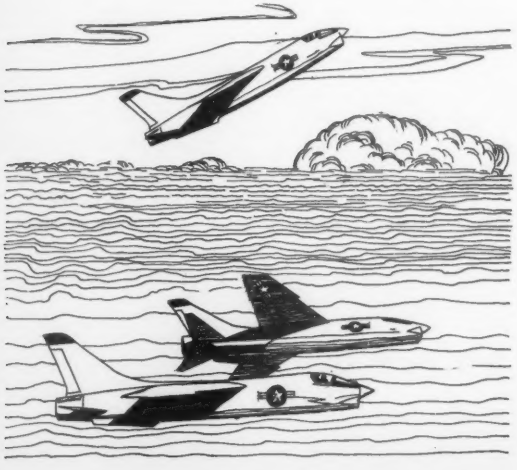
Unusual Attitude in the Clag

A FLIGHT of three F-8 *Crusaders* launched from NAF Auxiliary on a formation training hop intending to recover at NAS Homebase 80 miles away. The flight included an instructor lead and two FRPs. The FRPs each had approximately 15 hours in the aircraft and had only recently become instrument qualified.

The formation portion of the flight proceeded without difficulty. It was noted by all in the flight, however, that the weather near Homebase looked bad but was above FRP minimums (500 feet and 2 miles). So the flight proceeded above the weather, at FL 210 (outside positive control area), in VFR conditions. Nearing Homebase, they contacted the controlling agency for individual IFR recoveries.

Destination TACAN was out, so the flight would have to use radar vectors. The first FRP was broken off on a vector and cleared to descend to 16,000 in solid IFR conditions. Shortly thereafter, he was cleared down to 6000 feet – with the other FRP and instructor being cleared in turn behind him.

As the first FRP leveled at 6000 feet, he experienced a main generator failure. Two resets were attempted, but the generator failed to come back on the line, so it was secured. The RAT (ram air turbine) was deployed, but no radio sidetones were heard, even though the RAT light was on, indicating good power. At this point, pungent blue-grey smoke began to rise from the rear of the right-hand console. The pilot quickly secured all possible electrical gear and opened the ram air vent.



During this time, power had been added, and a climb back to VFR conditions on top commenced.

After generator failure, the main attitude indicator tumbled, indicating a level 90-degree left bank, and an OFF flag appeared in the standby gyro. Observing these, the pilot concentrated on his climb, using the turn-and-bank indicator, VSI, altimeter, and airspeed indicator.

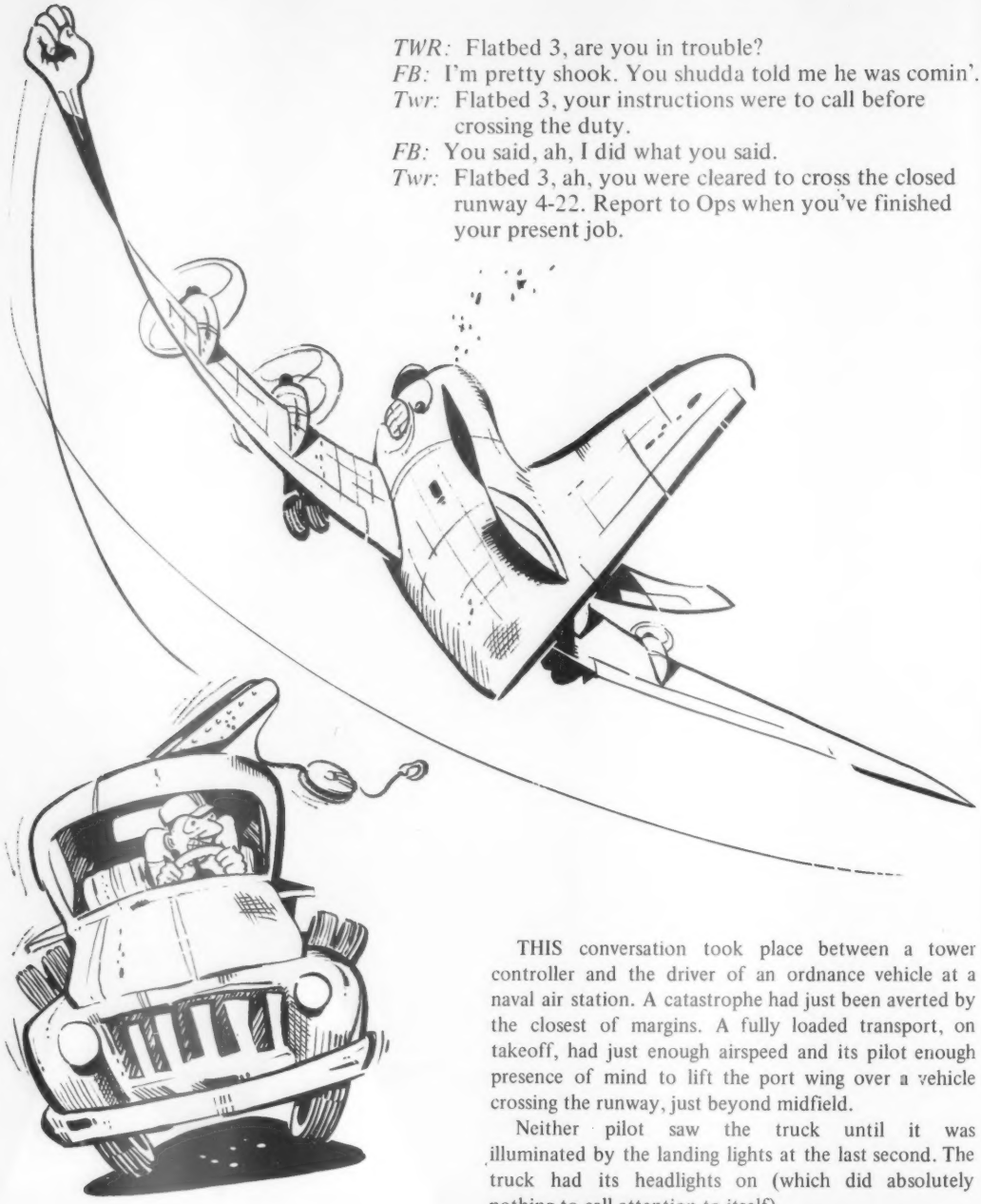
While still climbing IFR, the pilot began to worry about the separation between his aircraft and the flight. Because his IFF was secured, he believed that radar contact had been lost and quickly turned his IFF to emergency. Returning his scan to the instruments, he found himself in an unusual attitude. After a few tense seconds, he got the aircraft under control again and continued his climb to VFR-on-top at 17,000 feet.

Once VFR, the pilot turned toward NAF Auxiliary and reset his electrical equipment while watching the console area for smoke. The radio failed to come back on the line. After a few minutes of flight, however, the pilot got a TACAN lock-on for NAF Auxiliary and spotted a clear area which would permit a VFR descent and approach to the field. After ascertaining the winds and duty runway from the tetrahedron, he approached the field and received a green light to land.

The ASO noted in his report that the relatively inexperienced FRP handled the situation in an outstanding manner – but did make mistakes. The FRP, himself, acknowledged several mistakes, the first of which was not having a better knowledge of NATOPS. Such knowledge would have afforded him the use of the standby gyro during the IFR climb to on-top. While an OFF flag is present in the standby gyro during use of emergency electrical power, the information it presents is reliable for approximately 9 minutes after electrical failure.

Another mistake made during the emergency, and potentially the most dangerous, was that the pilot didn't honor the axiom to "aviate, navigate, communicate." In his concern about the loss of radar contact and separation from his wingmen, he became so intent on setting his IFF to emergency that he endangered himself and his aircraft by getting into an unusual attitude while on partial panel. While navigation and communication are important in an emergency situation, the fact that one must continue to aviate first cannot be overemphasized. ◄

What'd You Say?



TWR: Flatbed 3, are you in trouble?
FB: I'm pretty shook. You shudda told me he was comin'.
Twr: Flatbed 3, your instructions were to call before crossing the duty.
FB: You said, ah, I did what you said.
Twr: Flatbed 3, ah, you were cleared to cross the closed runway 4-22. Report to Ops when you've finished your present job.

THIS conversation took place between a tower controller and the driver of an ordnance vehicle at a naval air station. A catastrophe had just been averted by the closest of margins. A fully loaded transport, on takeoff, had just enough airspeed and its pilot enough presence of mind to lift the port wing over a vehicle crossing the runway, just beyond midfield.

Neither pilot saw the truck until it was illuminated by the landing lights at the last second. The truck had its headlights on (which did absolutely nothing to call attention to itself).

There are a number of factors which played a part in this near disaster:

• *Misunderstanding.* Frequently, transmissions from the tower to drivers of airport vehicles mean something entirely different to each party. When the controller says, "Call before crossing the duty," he has formed a mental picture of the driver knowing full well where he is at all times and that he will stop well short of the active until further clearance is given. On the other hand, a driver may not realize it's mandatory to call before proceeding beyond a point. What point?

He could be unsure just where the tower wants him to stop and call. Then to compound the situation, a driver may inadvertently keep going across the duty without realizing his error.

• *Habit.* Vehicle drivers around air stations form certain habits, on certain routes, under various conditions of day or night. For example, it isn't unusual for any driver, with a lot on his mind, to reach his destination and not remember one thing about stop signs, stop lights, or caution areas along his route.

In this near mishap, the ordnance truck driver said he seldom knew where he was on the field at night and that he depended on tower controllers to guide him. It wasn't his habit to cross any wide stretch of concrete without a call, and he didn't know why he started across this time unless – and he admitted the possibility – he hadn't realized he was on the duty runway.

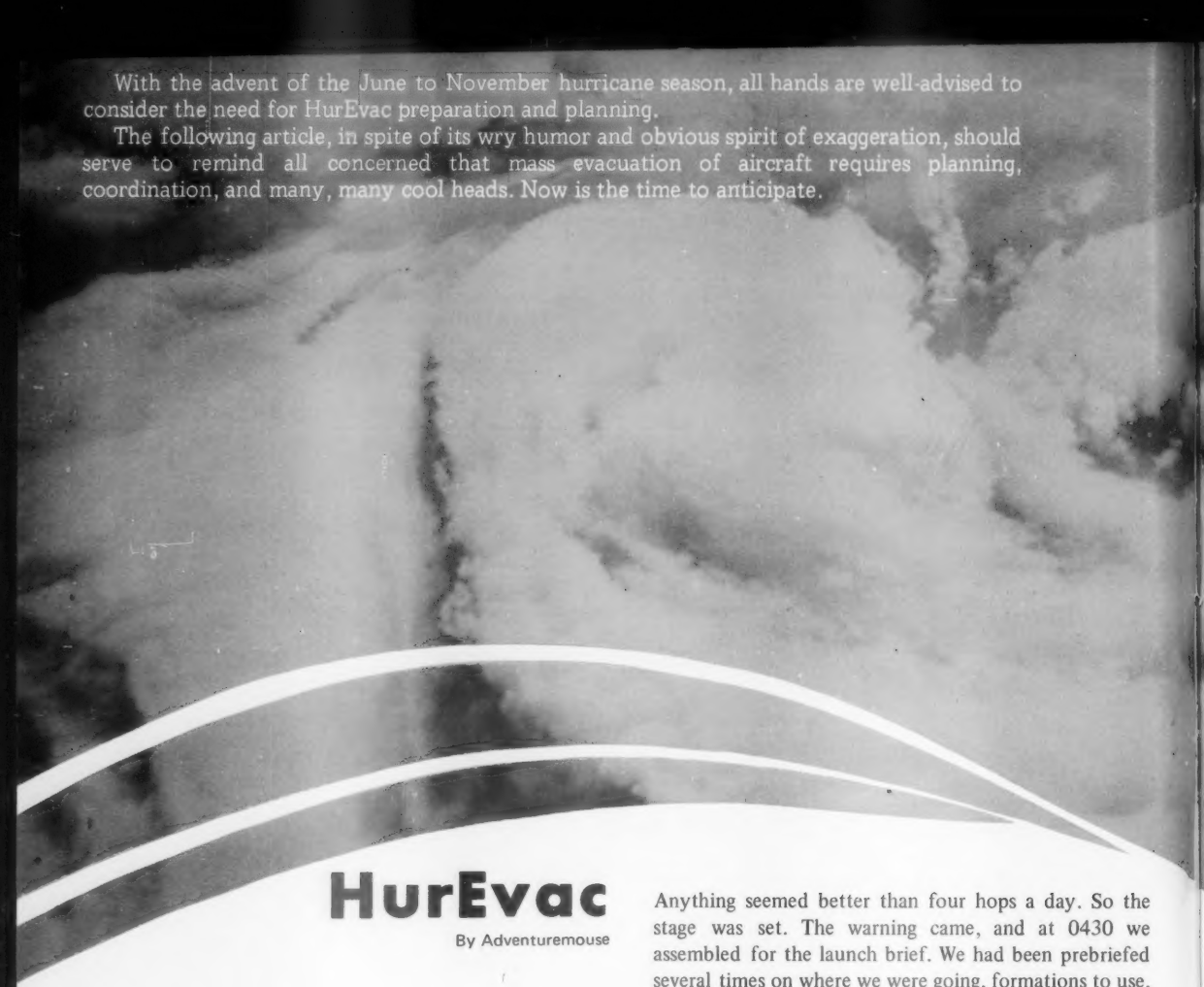
• *Disorientation.* Air stations are about as poorly lighted for night ground operations as any transportation center can be. Even railroad yards, where trains are not free to move as they please, are better lighted than airfields. It's mighty easy to become disoriented at night. Sometimes pilots have reported feeling completely lost. Drivers of vehicles are subject to the same symptoms when on taxiways or crossing large expanses of darkened concrete.

There's no excuse for uncertainty and confusion among vehicle drivers on an airfield. Station/squadron driver training should be comprehensive enough to ensure complete familiarity, both day and night, with taxiways, runways, ramp areas, etc.

Just because a Navy driver has a license to operate a government vehicle, this doesn't authorize him access to the airfield ramp areas. Squadron and station personnel involved with the vehicle movement must receive detailed, thorough instruction in the physical "lay of the land." In this situation, familiarity does not breed contempt – it helps ensure airfield safety. ◄

With the advent of the June to November hurricane season, all hands are well-advised to consider the need for HurEvac preparation and planning.

The following article, in spite of its wry humor and obvious spirit of exaggeration, should serve to remind all concerned that mass evacuation of aircraft requires planning, coordination, and many, many cool heads. Now is the time to anticipate.



HurEvac

By Adventuremouse

TWO words about a HurEvac – *don't go!* You might assume the duty, go on leave, get grounded, or take charge of operations and send someone else, but don't *you* go!

Having given this valuable advice, I will describe a HurEvac in which I took part. It was well-planned. All pilots were briefed. Everyone knew exactly what to do. *And the operation was a complete fiasco.*

That was the big picture, now for the details. I was stationed in the Pensacola area, instructing in the T-28. It was a typical midsummer day in the Training Command – hot, humid, miserable. Summer in Florida also means hurricane season. The weather bureau keeps an eye on all tropical depressions and keeps the Gulf Coast prewarned. From these warnings, the Training Command sets HurEvac conditions for all squadrons.

A HurEvac sounded like fun, sitting around for a couple of days just eating, sleeping, and playing cards. Anything seemed better than four hops a day. So the stage was set. The warning came, and at 0430 we assembled for the launch brief. We had been prebriefed several times on where we were going, formations to use, etc. All we needed now were plane assignments and frequencies. The squadron had 120 aircraft without hangar space. There were 110 instructors, 20 of whom quickly found reasons not to go. No problem – 30 qualified students would fill the gap.

At 1230, the operations officer plus seven launched for NAS Memphis. We were on our way. Every 5 minutes for the next 70 minutes, eight more T-28s lifted off. The great "adventure" spirit was everywhere.

I was in the last flight and was airborne about 1400. The weather was marginal VFR with a thin broken layer around 1700 feet. We were to stay underneath the weather if at all possible. Terminal weather was forecast to be no problem in Memphis. Everything was still smooth and on schedule – 300 miles of T-28s burning 25,000 lbs of fuel an hour.

Our flight was average. Two experienced division leaders, five instructors with no recent formation experience, and a formation student. The student had no problem; the rest of us found a comfortable parade

position after 15 minutes or so. About this time, the first flight was touching down at NAS Memphis. Another hour and we would all be closed out. It was to be a long hour.

We were not outrunning the weather. The ceiling, still broken, was down to 1200 feet. Visibility was poor in light showers. At this point, we took the upper route, still expecting good weather at Memphis. Our armada was now in three groups: 1/3 on deck, 1/3 approaching low level, and 1/3 on top.

At this point, Memphis reported IFR, 900 feet broken. The lower group commenced contact approaches. The upper group started saturating all available holding space. Radar monitoring was impossible. Communication was hopeless. Still, everyone had plenty of fuel, and we were VFR. We could even see the field from time to time. A short delay, an hour at the most, we figured.

Unfortunately, we were not the only group heading for Memphis. NAS Pensacola sent an assorted group of T-2s, T-28s, C-45s, and a U-16. Saufley Field added a few T-34s and a dozen T-28s. Tyndall AFB was represented by 20 F-102s with 20 to 30 minutes' fuel remaining. Somehow, we all squeezed in and awaited instructions. By this time, all of the lower traffic was on deck, and the actual approaches started.

There was quite a delay in getting organized, and the jets started calling "low state." This started it. Now, everybody had a problem – more radio confusion – Navy versus Air Force, jets versus props, everybody versus Memphis Approach Control. The jets had to come down, and two by two they were cleared in. It was now 1630, and the '28 drivers were tired and ragged. With the jets in, the props started in, two at a time. There were some strange formations. A U-16 joined on a *Beechcraft*. Another *Beechcraft* joined a T-34. So far, no T-28 from our group had started in.

Fuel now became a problem for everyone. Low fuel state became the only way to get a clearance. When this stopped working, a few declared emergencies. We were still spectators. There were now four aircraft in the emergency pattern. One conversation between an F-102 and Memphis Approach was as follows:

"Memphis Approach, Air Force jet 309, low fuel state."

"Air Force jet 309, Memphis. Roger, Standby."

(A few minutes later.) "Memphis Approach, Air Force 309, 4 minutes fuel remaining."

"Air Force 309, Memphis. Roger, Standby."

(Exactly 4 minutes later.) "Memphis Approach, Air Force jet 309, commencing flameout approach." He made the runway and rolled by several T-28s like they were standing still.

A student landed a T-28 with high oil temperature and zero oil pressure. At the line, they couldn't find a trace of oil. One by one the emergencies were landed, and it was all over but the shouting.

One should have been issued a campaign medal. The Memphis Approach controllers should have received the Presidential Citation, simply because everyone made it. It was luck! It was a modern miracle!

As I taxied in and shut down, my feelings were unexplainable. I was dead tired. I was elated. I wanted to kill an Air Force pilot. I found one, and instead, we had a few drinks together. It was no use trying to tell anyone the problems you had getting in. The first liar didn't have a chance. A tape recording would have overwhelmed the Anymouse Editor.

The hurricane hit Corpus Christi, Texas, 700 miles from Pensacola. This was the final blow to our great "adventure" spirit – never again!

(Now is the time to plan. Don't let the hurricane season catch you unprepared. – Ed.) ◄

The transition from shore to shipboard ops is a big one for most squadrons. Therefore, it is best approached with caution and forethought. LT E. K. Andrews, ASO Fighter Squadron THIRTY-TWO, decided to start all hands thinking about a safe transition by means of a written reminder. His memo, issued by VF-32 CO, CDR John A. Burns, could serve as a guide to others making a similar transition. It began . . .

IT doesn't take a mental giant to realize that going to sea means a lot of changes for each of us. On 15 January, "Big John" gets underway. The following day, when flight operations commence, *Swordsmen* will begin a period of seemingly endless hours under adverse working conditions.

The pace will be much faster than we have experienced the last couple of months. The technique of sliding the schedule until the next day will no longer exist as an option. For each of us, it will be a period of readjustment; but to a large number of *Swordsmen*, it's also a completely new ball game.

A basic knowledge of the dos and don'ts involved in carrier operations goes a long way toward preventing an accident. The tempo of the flight deck is a trap for the nonprofessional. Besides being an unnatural

Hey Guys!

environment, it is totally unforgiving. Make a mistake and the results are usually serious. It is, under the circumstances, imperative that we quickly learn the pitfalls, follow the correct procedures, and carry out our responsibilities – *safely*.

Professionals realize the importance of following exact and accepted methods and then adhering to set procedures, *to the letter!* To some, "the established way," as directed by 4790.2 and other pertinent safety instructions, is not always the way to do things. If you are one of these, then the key conditions for an accident have already been met, and in many cases, sooner or later, an accident will result.

I cannot overemphasize the importance of being mentally prepared for the forthcoming carrier schedule. "Old hands" need a refresher, and "New *Swordsmen*" need a thorough indoctrination. Therefore, I have asked maintenance control to conduct flight safety training lectures, by duty section, to better prepare and condition us for carrier operations.

Attendance is mandatory, but only *you* can ensure 100 percent participation. Get as much from the program as you can. Questions and constructive comments will be welcomed. The time to be unsure of yourself is in the readyroom at this meeting, *not* on the flight deck later during launch/recovery operations.

Give a damn!!! Support maximum participation and operate safely. I am available 24 hours a day for questions and/or assistance, as is the safety officer, to see that we do our best and do it safely. It is my job, but more important, my contribution to *you* in continuing our outstanding safety record.

SOLVENT BURNS!

ANY solvent – kerosene, JP-5, avgas, dry cleaning fluid, paint thinner – will produce surprisingly painful chemical burns if left in contact with your skin for any length of time. This is particularly significant information for pilots and aircrewmen. If you spill fuel on your flight suit and don't change clothes, you'll probably regret it when you're strapped in at altitude and can do nothing about your predicament.

The following account from the Royal Canadian Air Force magazine *Flight Comment* describes one pilot's experience with fuel on his flight suit.

"We were planning an early morning takeoff for a flight from Goose Bay to Ottawa. The weather was good, but due to headwinds, we wanted every drop of fuel the bird would hold. It was cold outside, and we decided to do the external and strap in while still in the hangar. We could then be towed out and started, thus avoiding the discomfort of the below-zero weather.

"I am a qualified T-33 pilot, but was flying the back seat this trip. While the captain was doing the external inspection, I thought it might be a good idea to doublecheck the luggage carrier which was slung underneath, because I knew of cases of it coming adrift in flight.

"While I was underneath the wing checking the safety clips, the captain, who was opening each fuel cap to ensure that the tanks were full, opened the cap on the port main wing tank. The warmth of the hangar had caused some expansion, and as the cap was removed, about a quart of fuel ran down the wing.

'Did any fuel get on you?' he called.

'I don't think so,' I replied.

"I stood up, and the captain and an airman inspected my back. There was just a small spot, and it appeared already dried. Thinking about it now, I believe it was about a cup or two, but as the winter flying suit is quite porous, it had been immediately absorbed. I was well aware that fuel-soaked clothing next to the skin can cause painful burns, but in consultation with the other two, we all agreed that this didn't seem to be enough to bother about.

"Takeoff and climb were normal, and I had almost forgotten the spilled fuel. Just as we were leveling off, I began to feel a little heat on my shoulders where the harness straps applied pressure. I discussed this with the captain over the intercom and remarked that my suit must have absorbed more fuel than I thought. But if we returned to Goose Bay, we would lose a lot of time, and there was the problem of getting another flying suit. I decided that it wasn't too bad and that we could carry on.

"As time went on, my back was getting hotter and hotter. About the time we reached the point of no return, I realized that I was in real trouble.

"By now, I had undone the straps to relieve all pressure, but still the searing heat remained. It reminded me of my boyhood when my mother once left a mustard plaster on too long, but this was even hotter, and there was no way I could get if off.

"I squirmed around trying to relieve all pressure of clothing from my back, but it was impossible. Complicating this, I was wearing one-piece long underwear.

"The pain was becoming excruciating. I was really concerned, not only because of the pain, but it felt like holes were actually being burned into my back right to the bone, and I feared permanent disability.

"We were heading for the nearest suitable airfield, and I was beginning to wonder if I could last that long. The pain was so intense that I even debated bailing out, figuring that the captain in the front could still land the aircraft safely without the canopy. Had the terrain below not been so inhospitable, I think I would have.

"I managed to stick it out, however, and we landed safely. You can bet the first thing I did was strip to the waist in spite of the cold weather.

"I went immediately to the station hospital for treatment and was somewhat surprised, in view of the pain, that there was so little evidence of fuel burns. There were two red blotches on my back, each about double the size of a hand. It looked like a bad sunburn. The SMO thought that I would probably be laid up about a week, but fortunately it didn't take that long. Nevertheless, my skin may be permanently discolored where the blisters were.

"Looking back at it now, I realize how foolish it was to take off with fuel on my clothing. I was well aware that fuel leaking from a cigarette lighter, for example, can burn the skin, but I had no idea that such a small amount, as apparently spilled on my back, could cause such extreme discomfort.

"Believe me, if I ever spill fuel on my clothing again, I'll make sure that it is completely removed from the cloth before I go flying.

"I can't be certain, but in this case, had I been solo, I think I would have had to bail out."

notes from your flight surgeon

No Gloves

AN A-4 pilot really needed his gloves when flames enveloped his aircraft after landing, but he had just taken them off.

The pilot had taken off on a routine mission and shortly afterward was hit with a multitude of aircraft malfunctions necessitating an immediate emergency landing. This required dumping fuel to reach landing weight. Although the pilot thought he had secured the dump switch prior to touchdown, due to stress and distractions in the smoke-filled cockpit, he had not.

Confusion outside the aircraft complicated the situation further – the crash crew received a radio call to terminate the emergency. While the crash trucks returned to their original alert stations, the pilot taxied up just short of the dearming area and vainly signalled for the dearming crew to check his aircraft for hot brakes and install his gear pins. During these few moments, he unknowingly continued to dump fuel.

The pilots of two nearby aircraft saw that he was dumping fuel and called him on the radio. His radio had failed at the beginning of the emergency and was still inoperative. The other pilots then frantically gave him the NATOPS fuel-dumping signal, but he misinterpreted this as "come forward" (he had intentionally stopped his hot brake aircraft a safe distance from the dearming crew).

A moment later, the fuel beneath the aircraft ignited, enveloping the plane and pilot in flames. He unstrapped, disconnected his oxygen mask, and vaulted over the windscreen and down the side of the aircraft. *He had just removed his gloves,* and his unprotected hands were burned and cut.

"This pilot demonstrated poor judgment and complacency for his own safety by removing part of his safety/survival equipment prior to the completion of flight (being in the chocks and having the aircraft engine secured)," an endorser to the investigation report stated.

"Self-discipline regarding personal flight equipment – regardless of environmental and climate conditions – must be continually stressed by every commander."

The best personal protective equipment in the world can't help you if you're not wearing it when you need it.

Most Valuable

"I HIGHLY recommend having velcro tape installed on the strobe light and helmet to facilitate use of the strobe and to optimize its capabilities as a marking device. The strobe light proved to be the most valuable piece of equipment I had for positively marking my position in the water."

Rescued pilot

Weather Euphoria

HERE'S a new term coined by an investigating flight surgeon: "weather euphoria." We're not saying his theory is so or not so, but it's something to think about.

Weather euphoria, the flight surgeon says, occurs when a period of poor or unpredictable weather is followed by a day of technically perfect weather.

"For instance, under these conditions in the training command, the stress of flying students through marginal or rapidly changing weather is removed," he states. "There is a tendency toward a feeling of omnipotence and well-being accompanying flight. Anecdotes of close calls on clear days abound. Paradoxically, a beautiful, clear day is as dangerous as syllabus flying in weather that is less-than-perfect."

Additionally, the flight surgeon notes, aircraft density markedly increases in training command flight areas on clear days. Many of these aircraft are solo flights piloted by students with limited experience. Cautious flight and prudent judgment are essential to maintain safe flight operations.

What this flight surgeon says about the training command may very well apply to other areas.

'What would you do if...?'

THE "WHAT do you do if . . . ?" game has been played during many a readyroom rap session and throughout the slow-moving hours of a long patrol. Once again the game would be played, and once again its value proven.

The 12-hour flight was planned for a 2200-mile round trip with 4 hours of on-station time sandwiched in between. All was routine to this experienced plane commander and crew. After arriving on station, the No. 1 engine was shut down for a three-engine loiter. Everything proceeded as planned.

"What do you do if we have to go home on three engines?" quizzed the plane commander. Out came the NATOPS Manuals, as the copilot and flight engineer figured out the altitude, airspeed, and fuel required to return to Homeplate. "Good! Now what if we lose another and have to return with two?" asked the PPC. Once again, the charts were plugged, and the answers obtained. And so the game continued . . .

The magic time arrived. "Let's start No. 1 and go home," ordered the plane commander. The checklist was completed – then in order: rotation, light-off, *stagnate, feather*. Another try proved equally futile.

"I guess it's good we computed it, because there's only three left to go home on," the copilot remarked as the crew departed station with one caged.

As you have probably guessed by now, while still 600 miles and 2 hours away from Homeplate: "Oil loss No. 3 engine," called the flight engineer. Sure enough, oil was streaming on the No. 3 cowling in sufficient quantity to cause the plane commander to order, "Feather No. 3." With his eyes now wide open, the copilot picked up the NATOPS Manual, turned to the well dog-eared charts and picked out the required data for the return trip.

Once again, the "What do you do if . . . ?" game proved its worth.

EPILOGUE: The No. 3 engine was shut down with sufficient oil to allow a restart 5 minutes prior to landing, and a three-engine landing was made. The No. 3 engine was changed because of lab seal failure, and the No. 1 engine wouldn't start because of failure of the speed sensitive control. The PPC and crew received a WELL DONE for a professional conclusion to an eventful flight.

Submitted by VP-50

Transportability

The Missing Link in Helicopter Personal Survival Equipment

By LTCOL Dennis N. Anderson, USMC
Commanding Officer, Marine Air Reserve Training Detachment
Marine Air Reserve Training Command, NAS Norfolk

THE FIGHT for survival is as old as man.

We've come a long way from the simple thorny club, however. Today, a Marine helicopter pilot or crewman can be completely overwhelmed by the quantity of survival equipment at his disposal.

Availability of equipment and training in its use are essential to development of a functioning survival system. Another important requirement is that survival equipment must be available when an individual is suddenly confronted with an acute survival situation.

Why, then, do our helicopter combat flight crews, armed with this knowledge, launch on missions day after day while their expensive issue of survival equipment lies dusty in the bottoms of their lockers? Why would a man ignore what could be his only means of preserving his life?

To those who face this problem daily, the answer is simple: *transportability*. When there is no safe, practical, or convenient means of transporting an item, the most common tendency is to leave it behind.

"How can there be a problem of transporting survival equipment when all that cargo space is available in a helicopter?" you may ask.

Space does play an important role, but there is another consideration. *It is essential that the pilot or crewman have his survival equipment attached to him in some manner.*

Unattached . . . Doesn't Go

During my 12 years in the helicopter business, I have yet to see or hear of any person escaping from helicopter wreckage with any survival gear which was not already attached to him.

After an accident, the crewmembers' first thoughts are to get clear of the wreckage as fast as possible, then evaluate the situation. In some instances, individuals have been able to return to the aircraft and recover their survival equipment. However, these cases are in the minority. Usually, the helicopter is consumed by fire if the crash is on land, or it sinks into the sea. For these reasons, a satisfactory system or method for transporting personal survival equipment *must* be devised for helicopter crews.

Flying Greenhouse

To better appreciate this problem, consider the environment of Southeast Asia which has confronted thousands of helicopter crewmen over the past 10 years. The yearly mean daytime temperature is approximately 84°F. The summer months produce a mean daytime temperature of 90°F, that is made worse by high humidity.

To the transport helicopter pilot who has no environmental control beyond a heater, these conditions turn his cockpit into a greenhouse. Nevertheless, most phases of flight require him to have the precise timing, alertness, and coordination of a high-wire walker.

The high-wire walker executes a short but suspenseful performance. Unfortunately, the helicopter pilot is "on stage" from 6 to 8 hours. Moreover, he does not have the privilege of working in the thin, lightweight working clothes of the high-wire walker. The helo crewmember must wear flight equipment conforming to specific standards in various publications and directives.

Consider a typical helicopter pilot who participated in combat amphibious operations along the coast of Vietnam. In such a situation, his working uniform consisted of: underclothing and fire-resistant, long-sleeved nomex flight suit (which, until laundered numerous times, feels like coarse wool to many people) . . . double-sole wool socks and ankle-high laced boots . . . a crash helmet . . . on top of this, a nylon vest containing 10 to 15 pounds of highly desirable survival gear . . . and a survival weapon worn around his waist or over his shoulder.

We're Not Through

Over all this, he secures a life preserver which rests around his neck and hangs well down in front laden with more survival aids. His chest and mid-section have now been expanded some 10 to 12 inches, but, wait, we're still not through. Since this is combat, a bullet-resistant

chest and abdomen protector, a "bullet bouncer," is now placed on our slowly collapsing but still eager aviator. All that is left now is to fill his pockets with maps, charts, checklists, some pencils, and a flashlight. Oh yes, don't forget the fire-retardant gloves.

Now our typical combat pilot, who has suddenly been transformed from a lean, mean Marine into a bulky pack mule, is ready to climb into his flying greenhouse and professionally carry out his combat role.

Needless to say, even aside from the hot climate, not many men are able to maintain their peak proficiency equipped in this manner.

Control of Aircraft

A very important related factor in this total problem is control of the aircraft. Once outfitted in this aggregate of equipment and situated in a snug-fitted armored seat, many pilots find that their ability to maintain complete and unrestricted control of the aircraft under all flight conditions is sorely hampered.

The foregoing is not intended to dramatize the plight of a helicopter pilot or crewmember to gain sympathy, but rather simply to bring into focus the question asked earlier, "Why?"

Speaking realistically, few pilots are willing to jeopardize flight safety from a standpoint of aircraft control or fatigue in order to possess all of the dictated flight equipment. In view of this, prior to each flight, many pilots discard those items of equipment which they feel they can best do without. Number One on this discard list is usually the survival vest because the vest and its contents are necessary only if the helicopter is forced down. The vest also contributes the most towards fatigue and restriction of pilots' movements.

Long Range Safety

Through the diligent efforts of our various requirement branches, special committees, and industry, great strides have been taken to improve the safety design of helicopters. Increased safety reliability has favorably affected both inflight reliance and the prospect of survivability from an accident terminating in uncontrolled surface contact.

The immediate problem of survival equipment transportability can be separated from the development of complex future systems, however, because it does not require sophisticated technology and is needed in the present inventory of helicopters. One possible solution I would like to offer for consideration to those in the requirements business would, I believe, both alleviate some of the problems and reduce overall survival equipment cost.

Package the Equipment

My proposed solution is to incorporate required survival equipment for the entire crew in packages that could be installed in the back of the two pilots' seats or in the seat area and fastened to the pilots with lightweight straps, much like a parachute. The kits would not burden the pilots with a bulky wrap-around load, restrict their movement, or add to fatiguing heat discomfort.

Size and weight of equipment required for short-term survival could be kept down so it would not overly restrict the individual pilot or crewman's ability to exit the helicopter in an emergency.

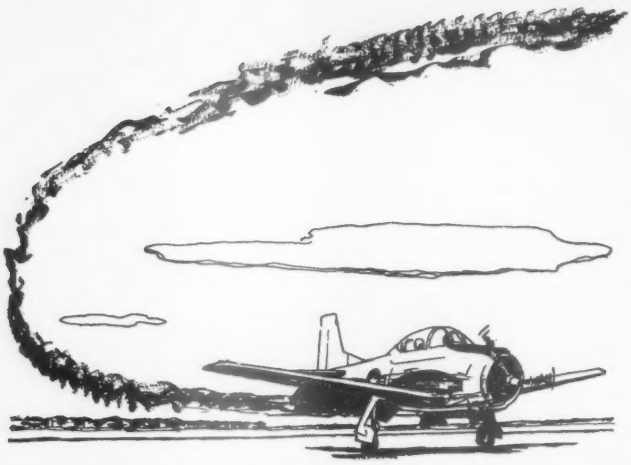
Leave the Packets

Upon termination of a normal flight, the crews would leave the survival packets in the seats, ready for use by the next crew. This would provide at least two distinct advantages. 1) It would ensure the availability of the equipment on every flight. 2) It would reduce equipment issues. Issues would be predicated on the number of aircraft in the unit and not, as is now the case, on the number of crewmembers. Procuring and maintaining approximately one-half the number of survival kits presently required would be considerably more economical.

Outfitting helicopter crewmembers with a standard issue of survival equipment is costly, and when survival equipment is left behind, it does not provide the crewmember with a dime's worth of survivability insurance. During these times, when frugality is a byword and austerity a fact, we must protect and effectively utilize our assets in both men and equipment.

The problem addressed here is real, and to those of us who have lived with it, sometimes quite haunting. What now remains is for aviation to accept both the problem *and* the challenge to alleviate it. ◄

Bravo Zulu



LT Thomas J. Walsh, VT-6

DURING normal cruise in a T-28B on a syllabus flight – 23.5" map, 2200 rpm, mixture normal – at 5100 feet MSL, LT Walsh noted a flickering sump warning light, fluctuating oil pressure, then steady illumination of the sump light. Placing the mixture in rich, he turned toward Brewton OLF for a precautionary emergency landing.

Oil pressure began to drop, oil temperature rose, and the engine started to run rough and backfire. His wingman reported smoke from the starboard side of the aircraft. As the pilot flew to a double high key position over Brewton, the aircraft vibrated and "lurched" continuously.

LT Walsh advanced the throttle to check the engine, but there was no response. RPM was 1400, oil temperature was pegged on the high side, and oil pressure was 30 psi. Passing through 4000, the wingman reported fire on the starboard side of the aircraft. LT Walsh secured the engine.

Continuing the emergency landing pattern, he lowered his gear at the 90-degree position. RPM was now 600. Two seconds after touchdown, the aircraft shuddered and the engine froze.

Subsequent investigation revealed No. 5 and 6 cylinder exhaust push rods bent, and the No. 5 exhaust rod housing cracked. The front sump contained a large amount of steel, aluminum, and silver. The external scavenge strainer was full of the same.

LT Walsh is to be commended for his good judgment and flying skill. His professional airmanship saved a valuable aircraft and prevented possible injury to his student and himself.

Well done!

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The following Anymouse report, because of its length, is presented as a separate article.

Reporting Traffic by ATC

THE SEMIANNUAL safety standdown at NAS Nearwater included an ATC procedures briefing applicable to the local approach area and was an eyeopener for me. One pilot commented on a near-miss with a Cessna 172 while on an IFR flight plan.

The pilot was not given a traffic report by approach control (FAA) who claimed no conflicting traffic on their scopes. The annoying part of the whole thing was the criteria said to govern FAA's reporting of conflicting traffic: (1) that the FAA controller was not under any requirement to call traffic on which he had no "strip" (flight plan) and (2) that traffic calls were on a "traffic permitting basis."

The former reason seems to be the reverse of what we need. This pilotmouse mostly needs information on the radar targets (aircraft) *not* on "strips" (i.e., those *not* under positive control on flight plans) and all those approaching on a collision course. Tell me that FAA does not discriminate in favor of "strip" radar targets.

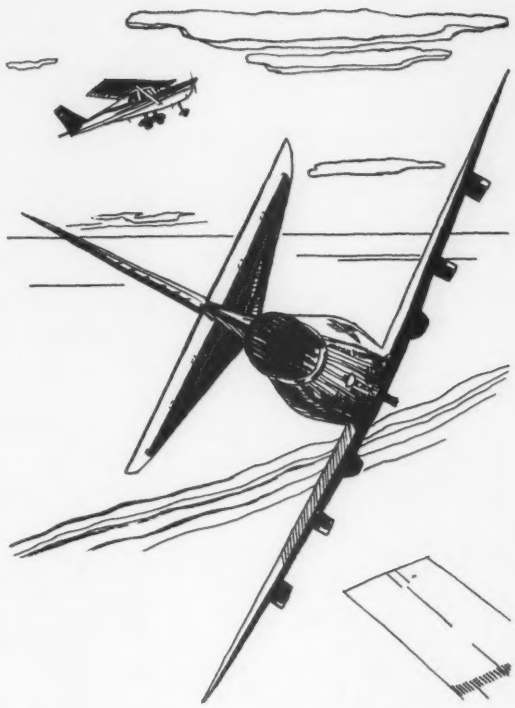
Doubtingmouse

We consulted with the FAA Liaison Officer here at the Naval Safety Center for an answer. His comments are based on the ATC Manual:

"To begin with, I believe that it will be necessary to clarify Doubtingmouse's misunderstanding of the functions of air traffic control. The FAA policy regarding traffic information is based on a practical application of available resources rather than discrimination. Approach control service is provided primarily to separate arriving and departing IFR traffic.

"In addition, radar traffic information is provided to VFR traffic where such programs have been developed. Traffic information is provided to all IFR aircraft unless omission is requested by the pilot. In any event, traffic information is classified as additional service.

"Additional services are provided to the extent possible, contingent upon the controller's capability to fit them into the performance of higher priority duties such as separation of IFR aircraft. Provision of the service is not mandatory because of many factors, such as limitations on the radar volume of traffic and frequency congestion. Workload may also prevent the controller from providing it. The controller has complete discretion for determining if he is able to provide or continue to provide a service in a particular case.



"Apparently, Doubtingmouse suffers under a false sense of security when operating on an IFR flight plan. There is no certainty that air traffic control will issue all traffic to him whether the other traffic is VFR or IFR. This has been stated publicly by FAA on many occasions and is the subject of an Advisory Circular."

Of course we can't take a controller to task for failing to report "bogeys" he's unaware of. While he normally will call conflicting traffic – the key words to remember here are "to the extent possible."

Just remember, when you're in VFR conditions (IFR flight plan or not) it's the pilot's responsibility to see and avoid other traffic. ◄

Facts do not cease to exist because they are ignored.
Aldous Huxley

Letters

The Constellation Taurus.

Reinforcement

FPO, San Francisco – The two accompanying photographs tell a good story. This nomex flight suit and gloves worn by an F-4J RIO in a major aircraft accident (DEA) prevented extensive injuries and possibly saved his life. He was surrounded by fire within seconds after the aircraft was hit. Fire never reached the front cockpit prior to ejection.

The RIO's anti-G suit was burned. In his words, "I would have been frizzled without a nomex flight suit, and I doubt if I would have had much use of my hands if I had not been wearing flight gloves."

He was burned primarily in the exposed area of his neck, around the edges of his oxygen mask, and on his forehead. One of his wrists, which was also exposed, was singed. As the fire came from the aft portion of the aircraft, he felt that most of his face was protected by his visor which was pulled down by G forces when the aircraft went out of control.

We thought you might be interested in these photos and the RIO's comments. The entire incident has reinforced our thinking on protective clothing.

CAPT R. J. Johnson, Jr., USMC
ASO (Afloat) VMFA-333

● That's what personal protective gear can do for you when the chips are down. Thanks for *your* reinforcment of our efforts to encourage readers to wear proper flight clothing.

Nomex Underwear

United States Army – If you are a nomex believer, go all the way. I refer to the letter to the editor, "Undershirt Under Nomex," in the August '72 APPROACH.

Nomex long underwear is available commercially for about $23 a set. Army studies have proved this will almost double the time to threshold blister. I have personally worn it for 4 years, including a year in Southeast Asia. I feel it should become an all-service issue item for flight crews.

J. M. Hooper
CWO USAR

● What you say about the benefits of a double barrier of nomex is true. Unfortunately, heat tolerances, real or imagined, vary among individuals. We have learned that 400 sets of nomex underwear are currently undergoing fleet evaluation. Being evaluated is the long-john version for winter use. Convincing aircrews that they should wear long johns in the summer will be another story.

Traffic Pattern Altitudes

NAS, Atlanta – Consider the following situation: On a cross-country flight to an AFB in your supersonic kerosene processer, approach control hands you off to the tower for a visual approach. The tower clears you for a 360-degree overhead approach, to report a 3000 foot initial. (Field elevation is 1500 feet MSL.) Question: What is your pattern? Inasmuch as most NAS's have a 1500-foot AGL break with a 1000-foot AGL downwind, the typical Navy jet jock would break at 3000 feet and report the 180 at 2500 feet. Wrong pattern, tailhooker!

As the Ops officer at a NAS situated on an AFB, I was asked recently by one of my Air Force counterparts why it is Navy pilots can't hold their altitude in the break . . . like we just can't fly very well! Of course, I immediately informed this gent that any Navy pilot could out-fly, out-drink, and out-fight any Air Force pilot that ever lived.

After a lively discussion of my assertion, it was brought to my attention

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request.

Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, Va. 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

that AFM (Air Force Manual) 55-48 depicts a standard VFR traffic pattern that specifies a 1500-foot AGL break and a *1500-foot* AGL abeam position for the 360-degree overhead approach. This provides a 500-foot vertical separation between the overhead pattern and the rectangular pattern. An identical pattern is depicted in ATP 7110.8C, FAA Terminal Air Traffic Control Manual. The 55-48 also requires that deviations from standard procedure be published in the remarks section of the Enroute Supplement.

If this info is disseminated in APPROACH, perhaps it will improve our reputation among our comrades in arms and enhance aviation safety.

CDR M. E. Feltham

● Right on. Pilots should keep in mind that many airports have "nonstandard" overhead approaches. If in doubt, ask the tower what altitude they want downwind.

A-6 External Baggage Container

FPO, San Francisco – I would like to again congratulate you on your very fine magazine.

In your article "Out of Control" in the January 1973 issue, you overlooked one very significant point in your discussion of the A-6 accident. You failed to mention that an EBC (external baggage container) has not been approved for carrier operations in A-6 series aircraft.

A long time ago, I read an APPROACH article that said, "You must remove the hazard." Your discussion was correct, but did not indicate how one could remove the hazard of carrying articles in the aft equipment compartment.

This hazard could be eliminated by simply providing each A-6 squadron with a carrier-approved EBC. The carrier suitability of an EBC is not beyond the present state of the art. It will just require someone, somewhere to establish the proper priorities and get the EBC carrier-qualified.

Once again we have proven that it is possible to go broke saving money, i.e., lose an aircraft while saving a few bucks not having an approved EBC.

CDR L. Diloreto
Commanding Officer
VAQ-131

● The NAVAIRSYSCOM A-6 Project Officer advises that the A-6 EBC *has* been carrier qualified. The rapid action change publishing the loading checklist for the EBC should be out by the time you read this.

Tell It Like It Is

FPO, New York – In regards to the letter "Tell It Like It Is" in the Dec 1972 APPROACH: If I am correct, nowhere does it say that the mishap board *must* present a unanimous position. I have sat on several boards where a minority did not agree with some portion of the AAR, usually analysis, and submitted a minority report.

CAPT Q. E. Wilhelmi, USN
Staff, COMASWFORSIXTHFLT

● What you say is true. It is hoped, however, that a board of qualified naval officers inquiring into the circumstances of a mishap will come to unanimity in their findings and conclusions. Failure to do so may indicate the need for a more detailed investigation. When the inquiry has been exhaustive and the group absolutely cannot agree on a major point, there is no prohibition against the submission of a minority report.

"VRs Not To Blame

NAS, Norfolk – I just finished reading "Briefing Tips" in the February issue of APPROACH. To say that "Surveymouse's" letter disturbed me is the understatement of the decade. Being in the only "heavy transport" Fleet Tactical Support Squadron on the East Coast, everyone will assume that "Surveymouse" was pointing his paw at us.

It is strict squadron policy that all our flights be flown according to NATOPS, with the crews doing all they can to ensure the passengers are well-briefed, comfortable, and happy. If my flight attendant NATOPS evaluator is ever made aware of any NATOPS violations, he will take swift and decisive action. The thousands of line flights flown by this squadron in a safe, timely, and professional fashion will probably never be the subject of a letter to APPROACH, but rest assured that they occur – time and time again.

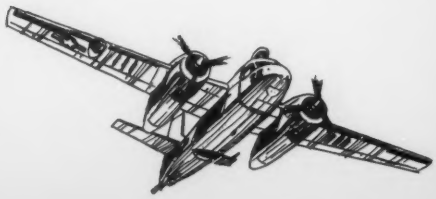
We have done so much, with so little, for so long, that we dare not let anything or anyone bring adverse attention to us. We are dedicated to the organic airlift requirements of the Atlantic Fleet. New programs within the command, such as the creation of a "Customer Services" branch, have been instituted to ensure that we maintain this dedication. We hope that all our passengers will let us know PERSONALLY if they are not satisfied with our services.

Frank D. Harper
VR-1

● We're pleased to reveal that VR-1 was not the culprit. No complaints here concerning our professional VR squadrons.

"Winning the Battle Efficiency "E" and the CNO Safety "S" is proof that aviation *Safety* and operational *Efficiency* do not need to be at opposite ends of the pole. This squadron was involved in the most demanding operational load in its history, yet it was able to sustain this demand with safe operations. This has been an all-hands evolution, and the key has been safety which permitted maximum assets to be available to meet the operational commitments."

CDR Stanley Arthur
CO ATTACK SQUADRON ONE SIXTY-FOUR



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RADM W. S. Nelson
Commander, Naval Safety Center
Publisher

Our product is safety, our process is education and our profit is measured in the preservation of lives and equipment and increased mission readiness.

Contents

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Cover: Sikorsky artist Andrew Whyte depicts the RH-53D performing its minesweeping mission. Photos on **pages 20-21** courtesy VF-32.


30173
NAVY
A.M. WHYTE